

REMARKS

As an initial matter, the undersigned thanks Dr. VanderVegt for courtesies extended during a telephone conference with the undersigned on February 17, 2005.

As a further matter, it is noted that the PTO-1449 forms attached to the Office Action dated July 1, 2003 (Paper 13) were not initialed. Thus, it is not clear if the USPTO has had the chance to consider the cited references. To address the issue, the Office is respectfully requested to send the undersigned initialed copies of the PTO-1449 forms indicating that the references have been considered. If copies of any of the references are required, the undersigned will be happy to send them to Dr. VanderVegt on request.

To assist Dr. VanderVegt, this submission includes a copy of the PTO-1449 form sent with the July 1, 2003 Office Action. The copy was also included with the RCE filed on August 23, 2004. The undersigned would be most grateful if the Examiner could send an endorsed copy of the 1449 form submitted on July 1, 2003 following consideration of the references.

Objection of claims 57 and 58

Claims 57 and 58 stand objected to as being dependent on a rejected base claim. While Applicants respectfully disagree with the objection, it is now moot. Specifically, the new claims have been drafted with language from claims 1 and 57 (new claim 62) and claims 1, 56 and 58 (new claim 63). Accordingly, new claims 62 and 63 should be deemed allowable. Such action is earnestly requested.

Claims 51-54, 56 and 59-61 stand rejected under 35 USC § 112, first (written description) on grounds that the specification "only defines the term 'chemically reactive' in terms of cysteine

and histidine". Action at pg. 2. In response, this information more than sufficient to convey to one working in this particular field that Applicants possessed the claimed invention as of at least the filing date.

In particular, and well before the filing date of the present case, the field knew precisely what amino acid side chains were "chemically reactive" and could be used to cross-link proteins. For instance, Shan S. Wong disclosed in a reference published in 1991 that only eight of the common amino acids (arg, glu, asp, cys, his, lys, met, try, and tyr) are reactive at all:

Studies of chemical modification revealed that **only a few of the amino acid side chains are really reactive** (cite omitted). Of the twenty amino acids, the alkyl side chains of the hydrophobic residues are for all interests and purposes chemically inert. The aliphatic hydroxyl groups of serine and threonine can be considered as water derivatives and therefore have a low reactivity. **Only eight of the hydrophylic side chains are chemically reactive.** These are the guanidinyll group of arginine, the γ - and β -carboxyl groups of glutamic and aspartic acids, respectively, the sulfhydryl group of cysteine, the imidazolyl group of histidine, the ϵ -amino group of lysine, the thioether moiety of methionine, the indolyl group of tryptophan and the phenolic hydroxyl group of tyrosine.

See Wong, S.S. in *Chemistry of Protein Conjugation and Cross-Linking* (CRC Press, 1991, Chapter 2, (emphases in bold added)).

Furthermore, Wong provides the structure of all eight (8) of the chemically reactive amino acid side groups at pg. 10 (Figure 2), for instance. Each moiety is grouped according to known reactivity in protein cross-linking reactions.

Accordingly, one of even ordinary skill who read the instant application would understand that the presently claimed MHC fusion proteins could be genetically modified to possess any of the eight chemically reactive residues specified by Wong including the Cys and His residues specified by the specification at pgs. 26-27. Indeed, the plain language of the specification (such as Cys or His) indicates that Applicants understood, clearly, that other residues besides Cys and

His were reactive and could be used to cross-linked the claimed fusion complex.

It is bedrock patent law that a patent application need not teach, *and preferably omits*, that which is well-known in the field. Clearly, one of skill reading the instant disclosure would know that only eight amino acid side chains are chemically reactive including the cysteine and histidine residues exemplified by the specification. Applicants should not be under a burden to list all eight chemically reactive residues since they are well known.

Turning to the rejection itself, the Office asked at pg. 3 of the Action:

[w]hat other types of amino acid residues are known in the art to have side chains that are “chemically reactive”, the specification fails to describe what types of reactivity are equivalent to the reactivity of the amino acid residues disclosed. The specification has failed to define the metes and bounds of the term “chemically reactive side chain” in a manner that would effectively convey to one of skill in the art that Applicant was in possession of a representative number of species defining the term.

Applicants respond that a description of other side chains is not required given that the field already knew that eight of the common amino acids are chemically reactive and the instant specification referred to two of them as exemplary. Clearly, one of skill having read the instant specification would understand that particular amino acids other than the Cys and His exemplified could be used with the claimed invention. More disclosure is certainly not required in this instance to demonstrate possession of the claimed invention in line with 35 USC 112 and the Guidelines for the Examination of Patent Applications referenced by the Office at the bottom of pg. 3 of the Action.

Thus one of skill reading the instant application would readily understand that “chemically reactive” in the context of the claimed invention claimed refers to one of the eight known reactive amino acids such as Cys or His.

Applicants submit herewith an Information Disclosure Statement (citing Wong).
Consideration of Wong by the Examiner would be most appreciated.

Applicants submit that all claims are allowable as written and respectfully request early favorable action by the Examiner. If the Examiner believes that a telephone conversation with Applicants' attorney would expedite prosecution of this application, the Examiner is cordially invited to call the undersigned attorney of record.

Although it is not believed that any further fee is needed to consider this submission including all papers attached hereto, the Office is authorized to charge deposit account no. 04-1105 should such a fee be deemed necessary.

Date:

8 July 2005

Respectfully submitted,



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